

62199 US

10/594475

Amendment

IAPO1 Rec'd PCT/PTO

28 SEP 2008

device.

The invention provides a semiconductor polishing composition comprising:

fumed silica as abrasive grains,

the semiconductor polishing composition being obtained by preparing a mixture of an acidic aqueous solution and fumed silica having a bulk density of 50 g/L or more and less than 100 g/L, and an alkali aqueous solution so that pH of the mixture is in a range of 1 to 3 and pH of the alkali aqueous solution is in a range of 12 to 14, and adding the mixture to the alkali aqueous solution continuously or intermittently.

Furthermore, in the invention, it is preferable that a content of the fumed silica is in a range of 10% by weight to 30% by weight based on a total amount of the composition.

Furthermore, in the invention, it is preferable that the alkali aqueous solution contains one or two or more additives selected from a polishing accelerator, an oxidant, an organic acid, a complexing agent, a corrosion inhibitor and a surfactant.

preferable dispersion state can be obtained. On the other hand, when the bulk density is 100 g/L or more, it is difficult to practically use the compound.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description and all changes which come within the meaning and the range of equivalency of the claims are therefore intended to be embraced therein.

Industrial Applicability

According to the invention, a mixture of an acidic aqueous solution and fumed silica, and an alkali aqueous solution are prepared, and the mixture is continuously or intermittently added to the alkali aqueous solution, and a bulk density of powder of the fumed silica before dispersed is preferably 50 g/L or more and less than 100 g/L and more preferably 75 g/L or more and 85 g/L or less.

When the bulk density of the fumed silica is less than 50 g/L, it is difficult to handle the powder and moreover, a transportation cost is very high. In a case where the bulk density is 100 g/L or more, the fumed silica is packed at the time of

() filling the container, resulting in difficulty of dispersion at the time of manufacturing the composition and furthermore, agglomeration easily caused on transportation or the like occasion after the manufacture. By setting the bulk density of the fumed silica to 50 g/L or more and less than 100 g/L, it is possible to realize a semiconductor polishing composition that can efficiently polish a semiconductor device with high accuracy at a high polishing speed while preventing fumed silica from being agglomerated and without causing a polishing flaw in the semiconductor device. Furthermore, by setting the bulk density so as to be higher than a conventional level, it is made easier to handle the powder, and the transportation cost can also be reduced.

Further, pH of the alkali aqueous solution is in a range of 12 to 14, and pH of the mixture is in a range of 1 to 3.

Further, according to the invention, a content of the fumed silica in an entire composition is in a range of 10% by weight to 30% by weight. This makes it possible to enhance dispersibility of the fumed silica and to further prevent agglomeration from being generated.

Further, according to the invention, the compound is prepared by adding, to an alkali aqueous solution of pH 12 to 14, a mixture of pH 1 to 3 made of an acidic aqueous solution and fumed silica. This makes it possible to further prevent agglomeration from being generated.

Further, according to the invention, the alkali aqueous

solution contain one or two or more additives selected from a polishing accelerator, an oxidant, an organic acid, a complexing agent, a corrosion inhibitor and a surfactant. Alkali contained in the alkali aqueous solution is one or two or more hydroxides selected from ammonium hydroxide, alkali metal hydroxide, and alkaline earth metal hydroxide. This makes it possible to enhance a polishing accuracy and a polishing speed.

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CLAIMS

1. (Amended) A semiconductor polishing composition comprising:
fumed silica as abrasive grains,

the semiconductor polishing composition being obtained by preparing a mixture of an acidic aqueous solution and fumed silica having a bulk density of 50 g/L or more and less than 100 g/L, and an alkali aqueous solution so that pH of the mixture is in a range of 1 to 3 and pH of the alkali aqueous solution is in a range of 12 to 14, and adding the mixture to the alkali aqueous solution continuously or intermittently.

2. The semiconductor polishing composition of claim 1, wherein a content of the fumed silica is in a range of 10% by weight to 30% by weight based on a total amount of the composition.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Amended) The semiconductor polishing composition of claim 1 or 2, wherein the alkali aqueous solution contains one or two or more additives selected from a polishing accelerator, an oxidant, an organic acid, a complexing agent, a corrosion inhibitor and a

surfactant.

7. (Amended) The semiconductor polishing composition of any one of claims 1 to 3, wherein alkali contained in the alkali aqueous solution is one or two or more hydroxides selected from ammonium hydroxide, alkali metal hydroxide, and alkaline earth metal hydroxide.